

on the Continent and in England, excepting that the minimum temperatures are somewhat lower there than on this side of the Atlantic. This is probably on account of the lower latitude. The gradients for the various seasons are given, but the distribution of the ascents is not wide enough to make these figures of much value. Thus the value of the upper part of the gradient for the spring is obtained from ascents on sixteen consecutive days in the spring of 1906, and we have no ground for assuming that these sixteen days represent the average spring conditions.

There is also a discussion of the results obtained from the kite ascents at Blue Hill. The values of the pressure, of the departures from the normal of the temperature, of the humidity, and of the direction and strength of the wind at different heights are plotted for the various segments of cyclones and anticyclones, and the curves and tables are well worth careful study.

(2) In addition to the ordinary observations and to those made by means of kites during the year, there is a general summary for the period 1901-5, and a table of mean temperature for the twenty years 1886-1905. Although the great difference of climate on the eastern and western sides of the Atlantic is well known, one cannot help feeling surprise on being reminded by a publication of this sort how great the difference is. Thus at Blue Hill, in latitude  $42^{\circ} 12' 44''$  N., a latitude further south than any part of France, and, be it remarked, closer to the Gulf Stream than many parts of England are to the Atlantic, we find that, on the average, the ponds are covered with ice from the end of November to the end of March, while in England,  $10^{\circ}$  further north, few people under twenty-five years are able to skate, owing to the almost total absence of opportunity during recent years. The difference is, of course, due to the prevailing westerly winds, which bring the temperature of the Atlantic to western Europe and the continental temperature of North America to the Atlantic coast of Canada and the United States.

There is also a very interesting account of the meteorology of total solar eclipses by Mr. H. Helm Clayton. In the brief space of a review it is not possible to refer to this in detail, but the tables give a collection of the changes that have been observed on various occasions. The temperature effect is perfectly plain, and is shown to vary with the intensity of the natural solar radiation at the time and place. It is pointed out how difficult it is with the other elements to separate the changes due to the eclipse from the casual and diurnal changes that are going on at the same time, but it appears to be proved that the barometer and hygrometer are influenced.

The shadow bands of the eclipse are discussed by Prof. Rotch, who comes to the conclusion that they are produced by rays from the narrow crescent of light passing through strata of different refractive index, the motion being due to the wind.

#### AUGUST METEORIC SHOWER.

ON August 10 the sky was watched for  $1\frac{3}{4}$  hours, but only 19 meteors were noticed, of which 12 were Perseids. The shower seemed disappointingly feeble.

On August 11 it became evident that the display had greatly intensified. In  $2\frac{3}{4}$  hours before midnight 73 meteors were counted, and they were nearly all Perseids from  $46^{\circ} + 58^{\circ}$ . Very few large ones were seen; in fact, the meteors were generally small, and the display could not be regarded as a very conspicuous one. The sky became rather foggy towards

midnight, and many small meteors must have been hidden. The vapour increased, and next morning after sunrise there was a thick autumn-like fog, which was not dispersed until the sun had risen high.

On August 12 the atmosphere was beautifully clear when night came in, but meteors appeared to be scarcely so numerous as on preceding night. They were, however, of astonishing brilliancy, and made the shower a very attractive and notable one. In all 65 meteors were counted between 9h. and 12h. 52m., but clouds partially veiled the sky after 11h. and obscured many which would otherwise have been seen. Relatively to the total number counted, I have never, within a long experience, remarked such an abundance of fine, flashing meteors. Their long, graceful flights and highly luminous trails added to the interesting and striking nature of the spectacle. A fireball at 9.42 gave a lightning-like flash, and must have presented its best effect to observers at London and in the eastern counties. The following were the recorded paths of a few of the most brilliant objects:—

Aug. 12 h. m.	Mag.	Apparent path
9 42 ...	$3 \times \frac{1}{2}$ ...	$5 + 27$ to $357 + 15$
9 42 ...	" ...	$330 + 19$ ,, $320\frac{1}{2} + 4$
9 51 ...	$> 1$ ...	$7 + 53$ ,, $343 + 40\frac{1}{2}$
10 4 ...	" ...	$302\frac{1}{2} + 37$ ,, $291 + 22$
10 4 ...	" ...	$302 + 8$ ,, $292 - 8$
10 4 ...	" ...	$265 + 1$ ,, $259 - 15$
10 18 ...	" ...	$352\frac{1}{2} + 24$ ,, $340 + 3\frac{1}{2}$
10 14 ...	" ...	$17 + 37$ ,, $12\frac{1}{2} + 30$
10 19 ...	" ...	$349 + 51$ ,, $318\frac{1}{2} + 34$
10 37 ...	$> 1$ ...	$342\frac{1}{2} + 25$ ,, $326\frac{1}{2} + 6$
10 43 ...	$> 1$ ...	$358 + 62$ ,, $332 + 51$
10 46 ...	" ...	$349 + 31$ ,, $331 + 9$
10 49 ...	$> 1$ ...	$18 + 20$ ,, $12 + 1$

These were all Perseids, and duplicate observations would be valuable as furnishing data for the computation of the real paths. The very clear summer weather has recently offered an almost unique opportunity for studying the progress of the shower during its approach to the maximum.

The finest meteor which appeared during the display was recorded on August 12 at 9h. 42m. It lit up the sky like a flash of lightning, and left a streak which remained visible for several minutes. The fireball was observed at Bristol by the writer, and also by the following:—Observers at Greenwich; Dr. W. J. S. Lockyer, London; Howard E. Goodson, S. Kensington; H. Wilkie, Bognor; R. Langton Cole, Havant; J. S. Sowerby, Tatsfield, Surrey; T. K. Jenkins, Blama; George Powell, Aberdare. The meteor was a magnificent specimen of the Perseids, and was quite noteworthy, even during a shower which consisted of unusually brilliant members. Its radiant point was at about  $47^{\circ} + 58^{\circ}$ , and it passed over the earth from above a point ten miles W. of Ipswich to a point about 15 miles E. of Croydon. Its height was from 87 to 53 miles, length of path 68 miles, and velocity about 35 miles per second. The observations from Hayling Island, Bristol, and S. Kensington are in excellent agreement. The streak was generated in the latter portion of the flight. As viewed from Bristol, the nucleus brightened several times, and just where the outbursts had occurred the streak exhibited sections which were intensely luminous. From Hayling Island this streak lay 4 degrees under  $\alpha$  and  $\delta$  Cassiopeia, and during the short interval it remained in sight it assumed a serpentine form and drifted two or three degrees to the westwards.

The following are particulars of four brilliant meteors recently seen and estimated =  $\frac{1}{2}$ :—

Da'e...	Aug. 8	Aug. 10	Aug. 11	Aug. 12
G.M.T. ...	10.8	11.15	9.57	10.19
Height at first...	94 m.	87 m.	103 m.	78 m.
" end...	65 "	52 "	48 "	52 "
Length of path...	58 "	62 "	110 "	52 "
Velocity per sec.	48 "	40 "	—	30 "
Radiant ...	41+57	43+56	43+58	47+58

On August 13 the watch was continued, but the Perseid shower had greatly declined. About 25 meteors were recorded in about 2 hours before 11h. 45m. (when clouds came over), and of these 11 only were Perseids.

On August 14, observing for a similar interval, 19 meteors were counted, including 7 Perseids. The principal minor shower seen at Bristol recently was at  $302^{\circ} + 22^{\circ}$  in Vulpecula, and the same radiant was well marked in 1908, both in July and August.

W. F. DENNING.

### NOTES.

ON Monday, August 16, an exhibition of manuscripts, portraits, medals, books, and natural history specimens illustrative of Darwin's life and work was opened to the public in the central hall of the Natural History branch of the British Museum. Although most of the special portion of the exhibits is displayed in one of the bays on the right side of the hall, a table-case, containing illustrations of the fertilisation of plants by insects and other animals, and a second devoted to insectivorous plants, have been placed in the middle of the hall. In addition to these, several of the permanent cases in the hall, such as those illustrating melanism, albinism, adaptation to natural surroundings, and the breeds of domesticated pigeons, are included in the exhibition. In order that the public may properly appreciate and understand the exhibition, an excellent little guide-book has been published, at the price of sixpence, in which, in addition to a brief but comprehensive biography of Darwin, and a photograph of the Darwin statue in the museum, will be found clear explanations of the leading features of the more important exhibits. These exhibits, apart from the two botanical cases, form a total of no fewer than 251, and certainly make a most instructive and interesting display. In the compilation of the guide-book it would have been better had the author avoided the use of words of the type of "exoskeleton," which are certainly not understood by the general public. As regards the specimens displayed, we must refer our readers to the guide, or, better still, to the exhibition itself.

THE fourth International Congress of Aëronautics will be held at Nancy on September 18-24.

MR. H. E. HARRISON, principal of Faraday House, and a fellow of several scientific societies, died on August 12 at fifty years of age.

CAPTAIN H. E. PUREY CUST, R.N., assistant hydrographer of the Navy, has been appointed hydrographer in succession to Rear-Admiral A. M. Field, F.R.S., whose term of office in that appointment has expired.

REUTER messages from Tokio report that a severe earthquake was felt at 3.30 p.m. on August 15 throughout Central Japan. Much damage was done to the important commercial city of Nagoya, which was practically destroyed by the earthquake that visited the district in 1891. Considerable damage is stated to have been done in part of the Shiga Prefecture.

WE learn from the *Times* that on August 12 the Italian balloon *Albatross*, manned by Lieut. Mina and Signor

Piacenza, and starting from Turin, reached the height of 38,715 feet, at which point one of the two aeronauts opened the valve. The highest altitude previously attained in a manned balloon was 35,500 feet, reached by Berson and Süring on July 31, 1901. The new record is equivalent to an altitude of 7.3 miles, and shows the great heights which can be attained when improved means of respiration are employed.

WE record with regret the death, on August 14, of Mr. William F. Stanley at eighty-one years of age. Mr. Stanley was well known as a maker of scientific instruments; in 1856 he invented the first simple open stereoscope, and later he designed and manufactured scientific instruments for the use of various Government departments. He was the author of several text-books, and in 1895 he published "Notes on the Nebular Theory in Relation to Stellar, Solar, Planetary, Cometary, and Geological Phenomena," the book being reviewed in the issue of *NATURE* for November 14, 1895 (vol. liii., p. 25). In addition to other beneficent acts, Mr. Stanley erected and equipped at Norwood the Stanley Technical Trade Schools, where boys are educated on thoroughly practical lines. The schools have been endowed adequately, and are for the future to be administered by the Charity Commissioners.

As has been already announced, the ninety-second annual meeting of the Société helvétique des Sciences naturelles will be held this year at Lausanne on September 5-8. The business of the meeting will be conducted in six sections, as follows:—section of physics and mathematics, president, Prof. H. Dufour; chemical section, president, Prof. H. Brunner; section of geology and geography, president, Prof. Lugeon; agronomic section, president, Prof. E. Chuard; botanical section, president, Prof. E. Wilczek; and the section of zoology and physiology, president, Prof. E. Bugnion. On September 6 two lectures will be delivered, one by Prof. S. Finsterwalder on aërodynamics in aviation, and the other by M. Auguste Forel on comparative psychology, determinism, and the theory of memory. Three lectures will be delivered on September 8 at Vevey, as follows:—M. Fritz Sarasin, on the history of the animal life of Ceylon; M. Raoul Gautier, on some recent important results furnished by astronomical photography; and M. Martin Rikli, on the natural history of Greenland. Full particulars of the meeting may be obtained from the general secretary, Prof. Paul L. Mercanton, the University, Lausanne.

TO *Annotationes Zoologicae Japonenses*, vol. vii., part ii., Dr. N. Annandale, of the Indian Museum, communicates a paper on Japanese freshwater sponges, in which an apparently new species is described. Of the five known Japanese species, three are widely distributed and the other two peculiar to Japan.

THE combined July and August issue of *Nature* contains an important paper, by Messrs. Bjørn Helland-Hansen and Fridtjof Nansen, on annual fluctuations in the mean temperature of the sea on the Scandinavian coast and their influence on the climate, agriculture, and fisheries of Norway. The paper is illustrated with a large number of temperature-charts.

IN the August number of the *Irish Naturalist* Mr. C. B. Moffat suggests that one reason why certain species of birds construct covered nests is to enable them to rear a larger number of nestlings than would otherwise be possible. The author supports this theory by mentioning